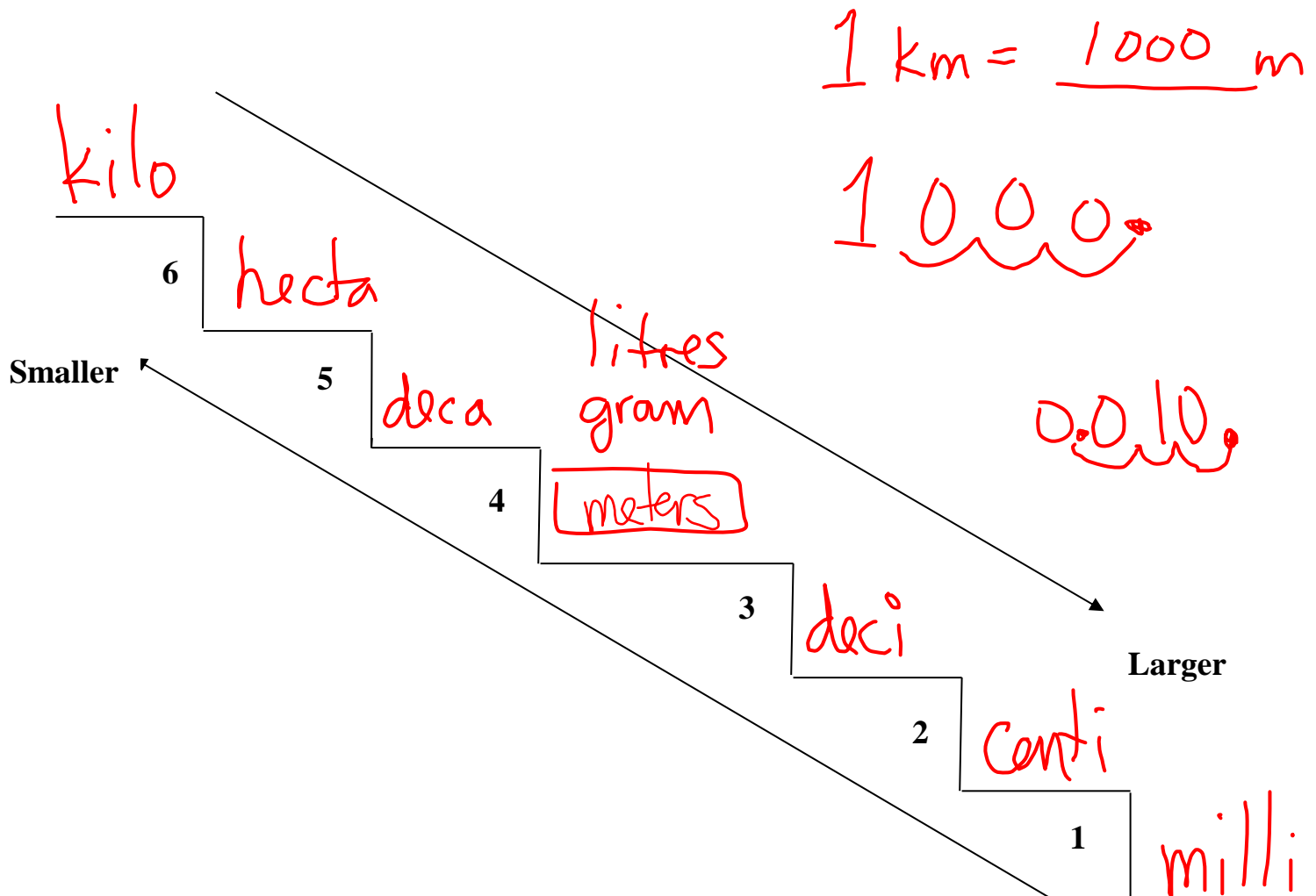


Lesson 7.2: Unit Conversions

Part A: Converting Metric to Metric

Fill in the metric conversion staircase.



Use the conversion staircase to convert the measurement on the left to the units on the right:

- | | | | |
|--------------|----------------|----------------|------------------|
| a) 1 km = | <u>1000</u> m | b) 10 m = | <u>0.010</u> km |
| c) 10 m = | <u>1000</u> cm | d) 75 mm = | <u>.5</u> cm |
| e) 1 cm = | <u>10</u> mm | f) 50 cm = | <u>0.50</u> m |
| g) 25 m = | <u>2500</u> cm | h) 845 mm = | <u>84.5</u> cm |
| i) 35.8 cm = | <u>358</u> mm | j) 0.0036 cm = | <u>0.00036</u> m |

Part B: Converting from Imperial to Metric and Metric to Imperial

CONVERSIONS

Imperial	Metric	Imperial ⇌ Metric
12 inches = 1 foot	10 mm = 1 cm	1 inch ≈ 2.54 cm
3 feet = 1 yard	100 cm = 1 m	1 foot ≈ 0.3048 m
1 760 yards = 1 mile	1 000 m = 1 km	1 yard ≈ 0.9144 m
		1 mile ≈ 1.609 km
16 fluid ounces = 1 pint	1 000 mL = 1 L	1 fluid ounce ≈ 29.5 mL
		1 in ³ = 16.4 cm ³
		1 in ² = 6.5 cm ²
2 pints = 1 quart		
		1 pint ≈ 0.473 L
8 pints = 1 gallon		1 gallon ≈ 3.785 L
16 ounces = 1 pound	1 000 g = 1 kg	1 ounce ≈ 28.35 g
2 000 pounds = 1 ton (U.S.)	1 000 kg = 1 t (Cdn)	1 pound ≈ 0.4536 kg

$$\frac{1 \text{ mile}}{1.609 \text{ km}} \text{ OR } \frac{1.609 \text{ km}}{1 \text{ mile}}$$

Examples

- 1) Convert 4 miles into kilometers.

$$4 \text{ miles} \times \frac{1.609 \text{ km}}{1 \text{ mile}} = 6.436 \text{ km}$$

- 1) Multiply the value you want converted by the conversion factor.
- 2) Write the conversion factor so that the units you want are on top and the units you have are on the bottom.

- 2) How many ounces are in 7 pounds

$$7 \text{ pounds} \times \frac{16 \text{ ounces}}{1 \text{ pound}} = 112 \text{ ounces}$$

- 3) How many gallons are there in 25 L?

$$\begin{aligned} &= 25 \text{ L} \times \frac{1 \text{ gallon}}{3.785 \text{ L}} \\ &= \frac{25 \text{ L} \times 1 \text{ gallon}}{3.785 \text{ L}} \\ &= 6.605 \text{ gallons} \end{aligned}$$

Convert from Imperial to Metric

Convert the following:	
1) 250.4 cm into inches	6) 251.4 inches into mm (two steps)
2) 3.3048 m into feet $3.3048 \text{ m} \times \frac{1 \text{ foot}}{0.3048 \text{ m}}$ $= 10.84 \text{ ft}$	7) 24 feet into m $24 \text{ ft} \times \frac{0.3048 \text{ m}}{1 \text{ ft}}$ 7.32 m
3) 5.9144 m into yards $5.9144 \text{ m} \times \frac{1 \text{ yard}}{0.9144 \text{ m}}$ $= 6.47 \text{ yards}$	8) 32.4 yards into m
4) 6.60934 km to miles $6.60934 \text{ km} \times \frac{1 \text{ mile}}{1.609 \text{ km}}$ 4.11 miles	9) 36 miles to km
5) 0.836127 in ³ into cm ³ $0.836127 \text{ in}^3 \times \frac{16.4 \text{ cm}^3}{1 \text{ in}^3}$ 13.71 cm^3	10) 21.25 mm to inches (two steps)